

**CLAIMS**

WHAT IS CLAIMED IS:

1. A clustered mail server system comprising:  
a plurality of mail servers, each mail server connected  
5 to a plurality of storage servers;

at least one domain name server connected to each of the  
plurality of mail servers, to an external computer network,  
and to an internal computer network; and

a mirroring table that lists, for each of the plurality  
10 of mail servers, one or more other mail servers in the  
plurality of mail servers associated with each said mail  
server,

wherein the domain name server, upon receipt of a request  
from a sender mail server, selects one of said plurality of  
15 mail servers to which to route a message and routes the  
message to the selected mail server,

and wherein the selected mail server stores the message  
on a storage server accessible to said selected mail server,  
and on each of the at least one other storage servers  
20 associated with those mail servers listed in the mirroring  
table for said selected mail server.

2. The server system of claim 1, wherein the domain  
name server is adapted to select each of the plurality of mail  
servers in a roundtable manner as subsequent messages are  
25 received.

3. The server system of claim 1, wherein the domain  
name server is adapted to querying each of said plurality of  
mail servers as to load and based on the response to said  
query select one of said mail servers to process a mail  
30 request.

4. The server system of claim 1, further comprising  
a table of mail exchange records, such that each of the  
plurality of mail servers is associated with at least one mail

exchange record, each said mail exchange record including a priority index for the associated mail server for determining the priority of selection of the associated mail server by the domain name server,

5            wherein the domain name server is adapted to altering the priority index in the mail exchange record associated with each mail server.

5.    The server system of claim 1, further comprising:  
a catalog table; and

10           a message tracking agent, wherein said message tracking agent creates a transaction record in the catalog table that records the storage servers on which a message is stored.

6.    The server system of claim 5, further comprising  
a plurality of access servers adapted to enable an client  
15    to retrieve messages stored on a first storage server connected to a first mail server and on each of the at least one other storage servers associated with mail servers listed in the mirroring table of said first mail server,

         wherein the domain name server, upon receipt of a  
20    client's message retrieval request, selects one of said plurality of access servers to service the message retrieval request, and wherein the message tracking agent reads the catalog table to locate and compile the client's messages and returns said messages to the selected access server.

25           7.    The server system of claim 1, further comprising a database of client addresses, so that the domain name server can verify the address of an incoming message received from the network, and can verify the address of a client requesting messages.

30           8.    The server system of claim 1, further comprising:  
means for detecting a virus attached to an incoming message;

a database of sender addresses, means for comparing a sender address of an incoming message against said sender address database, and means for blocking an incoming message whose sender address is in said sender address database; and

5 means to determine if an client wishes to be notified of an incoming message, and means to notify any such client of the incoming message.

9. The server system of claim 1, further comprising means for storing a facsimile message on a selected storage  
10 server associated with a mail server and on each of the at least one other storage servers associated with the mail servers listed in the mirroring table.

10. The server system of claim 1, further comprising means for storing a voicemail message on a selected storage  
15 server associated with a mail server and on each of the at least one other storage servers associated with the mail servers listed in the mirroring table.

11. The server system of claim 1, wherein each storage server associated with each of the plurality of mail servers  
20 is accessible by a physically independent path.

12. A system for load-balancing a plurality of interconnected mail servers and storage servers connected to a computer network via a domain name server, said system comprising:

25 one or more mail exchange records, wherein each mail exchange is associated with one of a plurality of mail servers and includes a priority index for the associated mail server;

means for a domain name server to change the value of the priority index for an associated server, said priority index  
30 indicative of the priority of said associated server for receiving email from the domain name server;

a mirroring table that lists, for each of the plurality of mail servers, one or more other mail servers in the

plurality of mail servers associated with each said mail server;

a message tracking agent; and  
a catalog table,

5 wherein the domain name server, upon receipt of a request from sender mail server, selects a first mail server with a priority index value indicative of a highest priority to process a message associated with the request, and

10 wherein the message tracking agent copies and stores said message to those storage servers associated with those mail servers listed in the mirroring table of the first mail server and records a record of the message and the storage servers on which said message is stored in the catalog table.

13. The system of claim 12, wherein said domain name  
15 server is adapted to querying each of said plurality of mail servers as to load and altering the value of the priority index in the mail exchange record associated with each mail server in response to said query.

14. The system of claim 12, wherein the domain name  
20 server is adapted to select each of the plurality of mail servers for storing incoming messages in a roundtable manner as subsequent messages are received.

15. The system of claim 12, further comprising  
means for one of a plurality of access servers to  
25 retrieve messages stored on a first storage server associated with a first mail server and on each of the at least one other storage servers associated with mail servers listed in the mirroring table of said first mail server in response to a message retrieve request from a client,

30 wherein the domain name server, upon receipt of an client's message retrieval request, selects one of said plurality of access servers to service the message retrieval request, and

wherein the message tracking agent reads the catalog table to locate and compile the client's messages and returns said messages to the access server.

16. The system of claim 12, further comprising a  
5 database of addresses, so that the domain name server can verify the recipient address of an incoming request received from the network, and can verify the address of a client requesting messages.

17. The system of claim 12, further comprising:  
10 means for detecting a virus attached to an incoming message;

a database of sender addresses, means for comparing a sender address of an incoming message against said sender address database, and means for blocking an incoming message  
15 whose sender address is in said sender address database; and

means to determine if a client wishes to be notified of an incoming message, and means to notify any such client of the incoming message.

18. The system of claim 12, further comprising means for  
20 storing an incoming facsimile message on a storage server associated with a selected mail server and on each of the storage servers associated with the at least one other mail servers listed in the mirroring table.

19. The system of claim 12, further comprising means for  
25 storing an incoming voicemail message on a storage server associated with a selected mail server and on each of the storage servers associated with the at least one other mail servers listed in the mirroring table.

20. The system of claim 12, further comprising a  
30 physically independent path to each storage server associated with each of the plurality of mail servers.

21. A method for processing messages comprising the steps of:

receiving, at a domain name server, a request from a sender server;

selecting, by the domain name server, one of a plurality of mail servers to which to rout an incoming message

5 associated with said request;

routing the incoming message to the selected mail server;

storing the message on a storage server associated with said selected mail server;

10 copying said message to one or more other storage servers associated with mail servers from among the plurality of mail servers that are associated with said selected mail server; and

recording in a catalog table a record of the message and each of the storage servers wherein the message is stored.

15 22. The method of claim 21 further comprising the step of maintaining a mirroring table that associates with each mail server one or more other mail servers from among the plurality of mail servers.

20 23. The method of claim 21, further comprising the step of maintaining a priority index associated with each of the plurality of mail servers, wherein the value of the priority index is indicative of the priority of said associated mail server for receiving messages from the domain name server.

25 24. The method of claim 23, wherein the domain name server alters the value of a mail server's priority index in response to a query of said mail server's load.

30 25. The method of claim 23, wherein the domain name server alters the value of each mail server's priority index and selects each to service incoming messages on a roundtable basis.

26. The method of claim 21, further comprising the step of verifying that the recipient address of an incoming message corresponds to a valid account of the domain name server.

27. The method of claim 21, further comprising the steps of:

scanning the content of the incoming message in order to detect any virus attached to said message;

5 comparing the sender address of the incoming message against a sender address database, and blocking an incoming message whose sender address is in said sender address database; and

determining if an client wishes to be notified of an  
10 incoming message, and notifying any such client of the incoming message.

28. The method of claim 21, further comprising the steps of:

requesting, by an client, to retrieve stored messages;

15 selecting, by the domain name server, one of a plurality of access servers to process the client's retrieval request;

reading the catalog table to determine one or more storage servers and associated mail servers of said plurality of storage servers and mail servers on which the client's  
20 messages are stored;

compiling the client's messages from the one or more storage servers on which the client's messages are stored; and sending the compiled messages to the client.

29. The method of claim 28., further comprising the step  
25 of verifying that the client requesting messages has a valid address on the domain name server.

30. The method of claim 28., further comprising the step of notifying the client if no messages were found.

31. The method of claim 21, wherein the messages are  
30 email messages.

32. The method of claim 21, wherein the messages are facsimile messages.

33. The method of claim 21, wherein the messages are voicemail messages.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99